AMENDEMENTS TO THE CLAIMS

1. (Currently Amended) A method for generating nodes of a multiway search tree, comprising the steps of:

a) assigning at least one key to each of the nodes; and

b) assigning pointer information so that related information written on the node is accommodated in a cache line independent of the number of assigned keys, the related information includes key information, a key pointer and a node pointer.

2. (Cancelled)

3. (Currently Amended) The method as recited in claim 1, wherein the step b) includes the steps of:

b1) setting ~~a~~ the key pointer, the key pointer indicating an address of first key information among a plurality of key information assigned to the node; and

b2) assigning continuous addresses to the key information except a first key information, wherein the address of the key information is located at a distance corresponding to a value of the key information from the address indicated by the key pointer.

4. (Currently Amended) The method as recited in claim 3, further the step b) further includes the steps of:

b3) setting ~~a~~ the node pointer, the node pointer indicating an address of a first child node pointer among a plurality of child nodes assigned to the node; and

b4) assigning continuous addresses to the other child nodes except a first child node, wherein the address of the child node is located at a distance corresponding to a value of the node information from an address indicated by the node pointer.

5. (Currently Amended) The method as recited in claim ~~2~~1, wherein the node pointer includes key number information indicating a number of the key information and child node location information representing an address of the first child node.

6. (Original) The method as recited in claim 5, wherein, if the node is a leaf node, the node pointer sets all values of the child node location information as `1`.

7. (Original) The method as recited in claim 3, wherein addresses of the other key information except the first key information are located based on an equation as:

Address of nth Key=Key pointer Kp+(Number of Bits Assigned to a key*n)where n represents a location of a packet.

8. (Previously Presented) A method for searching a multiway search tree in which pointer information is assigned to so as to accommodate related information in a cache line independent of a number of keys used in each node, the method comprising the steps of:

a) comparing an inputted IP address with a key value;

b) if the inputted IP address is consistent with the key value, searching an outgoing interface by using a key pointer included in the node;

c) if the inputted IP address is not consistent with the key value, determining a type of the node by searching a node pointer;

d) if the node is a leaf node, searching the outgoing interface by acquiring the key pointer if the inputted IP address is consistent with the key value; and

e) if the node is not the leaf node, moving to a next node with reference to the node pointer, and then repeating the steps of a) to c).

9. (Original) The method as recited in claim 8, wherein the step d) includes the steps of:

d1) finding a key value region having the inputted IP address based on a comparison result of the step a); and

d2) detecting the outgoing interface corresponding to the key value region.

10. (Previously Presented) The method as recited in claim 8, wherein the key value of the node is compared with the inputted IP address based on a longest prefix matching (LPM).

11. (Currently Amended) A computer readable recording medium storing instructions for

executing a method for generating nodes of a multiway search tree, the method comprising the steps of:

a) assigning at least one key to each of the nodes; and

b) assigning pointer information so that related information written on the node is accommodated in a cache line independent of the number of assigned keys, wherein the related information includes key information, a key pointer and a node pointer.

12. (Currently Amended) The computer readable recording medium as recited in claim 11, wherein the step b) includes the steps of:

b1) setting ~~a~~ the key pointer, the key pointer indicating an address of first key information among a plurality of key information assigned to the node;

b2) assigning continuous addresses to the other key information except of the first key information, wherein the address of the key information is located at a distance corresponding to a value of the key information from the address indicated by the key pointer;

b3) setting ~~a~~ the node pointer, the node pointer indicating an address of a first child node among a plurality of child nodes assigned to the node; and

b4) assigning continuous addresses to the other child nodes except a first child node, wherein the address of the child node is located at a distance corresponding to a value of the node information from an address indicated by the node pointer.

13. (Previously Presented) A computer readable recording medium storing instructions for executing a method for searching a multiway search tree in which pointer information is assigned to so as to accommodate related information in a cache line independent of a number of keys used in each node, the method comprising the steps of:

a) comparing an inputted IP address with a key value;

b) if the inputted IP address is consistent with the key value, searching an outgoing interface by using a key pointer included in the node;

c) if the inputted IP address is not consistent with the key value, determining a type of the node by searching a node pointer;

d) if the node is a leaf node, searching the outgoing interface by acquiring the key pointer if the inputted IP address is consistent with the key value; and

e) if the node is not the leaf node, moving to a next node with reference to the node pointer, and then repeating the steps of a) to c).

14. (Original) The computer readable recording medium as recited in claim 13, wherein the step b) includes the steps of:

d1) finding a key value region having the inputted IP address based on a comparison result of the step a); and

d2) detecting the outgoing interface corresponding to the key value region.